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ABSTRACT

A review of the literature of research in education and economics revealed very limited linkages between education (human capital) and economic development. Much of the economic development research has been carried out in developing nations and is case-study based. Many case studies concentrate on identifying factors that influence location or expansion of businesses. In one U.S. study, the location of new high technology firms was influenced by the presence of a "major" research-oriented university, availability of technical personnel, the quality of local school systems, and (in the South) the presence of vocational training facilities. Studies of the economic aspects of education comprise a very small proportion of educational studies; the majority of these focus on school financing and related equity issues. Among agricultural economists, education research topics appear to be in a renaissance period, stimulated by increased interest in rural development. However, this growing concern with educational issues has not been translated into quantitative research. Although the literature review did not establish strong research linkages between education and economic development, some subsidiary linkages were evident, such as research addressing returns to investment in education and research. Suggestions for research areas are found in a report from the Southern Growth Policies Board: educational finance in states with low incomes and property tax wealth, economic incentives for dropout prevention, mobilization of resources to eliminate adult illiteracy, preparation of a globally competitive workforce, and changes in the federal government's role due to population mobility. This paper contains 23 references. (SV)

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Education: Linkages with Economic Development

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INTRODUCTION

The commission given for this paper by the Southern Regional Information Exchange Group (SRIEG-53) was simple and uncomplicated: survey the literature to determine research linkages between education (human capital) and economic development, and consider potential researchable topics between the two subject areas. Although the charge by SRIEG-53 seemed elementary, accomplishing the directives proved more difficult. In summary, the literature revealed very limited research linkages between human capital and economic development. Many economic development studies have been conducted in developing countries, especially Africa and Asia. On a more positive note, the lack of documented research linkages between human capital and economic development implies that research opportunities will be unbounded.

LITERATURE REVIEW

Economic Development

Research interest in the topic of economic development is immense. A general search under the subject heading in the University of Florida library system yielded almost 2400 manuscripts on the topic, excluding periodicals. As mentioned previously, much of the research was concentrated in the developing areas of Africa and Asia.

A significant portion of the literature is case study based. These studies may prove most useful and insightful for the SRIEG-53 group. Many of the case studies concentrate on identifying factors that influence new business start-ups or expansion of businesses already present in communities. Factors identified that influence business location and expansion have been fairly consistent among studies in both the private and public sectors.

Determinants with positive influence on economic development include location, availability of labor, labor skills, quality of schools, access to doctors, hospitals, banks, and credit institutions (Southern Growth Policies Board, Wallace, Stark, Richards, Carlino and Mills, Hedman). Thrall identifies a different categorization of industrial location determinants that includes agglomeration economics, manufacturing costs, transportation costs, availability of resources, amenities and government. All the previously identified determinants could be cataloged under Thrall's system. The National Association of Towns and Townships identifies capital, labor and technology as necessary factors for business formation.

Research also suggests that economic activity as measured through plant location deviates based on other factors. For example, Hekman noted that industrial location determinants vary according to firm size. Specifically, he noted small firms have a "much narrower focus for site selection than large companies with plants in several states. Most of the small firms consider sites in only one state...usually close to the owner's place of residence" (Hekman). Epping concluded that "traditional" industries base plant location and relocation decisions primarily on labor supply and raw materials and all other factors are

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secondary determinants. His research further notes that the availability of the labor supply in the community where the firm locates is less important than the availability of the labor supply in the area where the firm locates. Obviously this refers to the willingness of labor to commute for employment opportunities.

Buck and Hobbs conducted a study to determine location determinants of new high technology firms. The study was limited to 57 university and college communities across the country. One of the important determinants identified was expected: the presence of a "major" research oriented university influenced the firm's location. Another important determinant was less expected: the chief executive officer in a "majority of firms was either an alumnus or a former faculty member of the local university." This later finding may be cited as the California model. Individuals familiar with the development of the "Silicone Valley" in California are well aware that most high tech companies in the region were started by university faculty, graduate students or undergraduates from one of the colleges in the immediate vicinity.

Buck and Hobbs asked the high tech firms surveyed to identify and rank 56 factors that were important to firm location. Factors identified as essential or very important were a clean physical environment, availability of technical personnel, absence of drug/alcohol problems in the community, quality school system, low traffic congestion, knowledgeable bankers, positive government policies toward industry, and availability of medical facilities and services.

Less important determinants were industrial site leases, wage levels, vocational training facilities, trucking and rail service, waste disposal, water system capacity, public transportation and private schools. Buck and Hobbs noted that Southern firms in general expressed similar opinions to all firms but placed more emphasis on vocational training, climate, business tax advantages, cost of living, availability of industrial sites, proximity of machine shops, etc. Location determinants of less importance to businesses in general identified by Carlino and Mills include taxes, community attitudes, state/local legislation and industrial development bonds.

These studies contribute much to our understanding of firm location decisions. However, more information needs to be assimilated to fully understand firm decision choices. For example, do location determinants vary according to size of the firm as suggested by Hekman? Are there regional differences as suggested by Buck and Hobbs? Most of the case studies concentrate on survey information. Can these data be quantified to increase our understanding of firm location decisions?

Education and Human Capital

Educational studies are also a robust body of research. Although the sheer number of studies is not as large and diversified as research in economic development, the majority of educational research can be ordered in one of the following classifications: finance, administration, curriculum and methods. Economic aspects of education comprise only a very small proportion of educational studies and there appeared to be no strong links between education and economic development, at least in quantified techniques.

Three of the categories of educational research, administration, curriculum and methods, are self-explanatory. Administration research typically covers topics related to overall school administration from a superintendent and guidance perspective. Curriculum research, in layman terms, concentrates on developing the core classes needed by students to succeed in the world of adults. Methods research appears to concentrate on how teachers take knowledge, transfer it to students and help them learn.

Economic contributions to educational research are more limited and narrow in scope. In general, the primary contributions have been in school financing and more specifically concentrate on equity issues associated with school funding. Economists share this research effort with educational finance experts. Berne and Steifel identified in excess of 50 educational finance studies that address school funding

issues on an equity basis. In most instances these studies concentrate on school distribution formulas and assess how these formulas contribute to a non-equitable distribution of funds, or how the formulas could be altered or improved to provide for a more equitable distribution of funds.

Agricultural economists contributed modestly to educational research in the 1970s (some names appearing in the literature search include Stinson, Debertin, Tweeten, Huie and Clouser). Contributions appear to have declined in the 1980s except for a small quantity of work by Deaton and McNamara at Virginia Polytechnical Institute and State University. Unlike the administration, curriculum and methods body of educational research, economic research appears more quantifiable. For example, contributions of the above mentioned authors attempt to quantify differences in funding between rural and urban areas, economies of school size, drop-out rates and school and non-school educational inputs.

At least among agricultural economists, education research topics appear to be in a renaissance period. Increased interest in the topic seems to be closely linked with escalated interest in rural development (Deaton, Drabenstott et. al, Knutson and Fisher, Schertz, Swanson and Butler, Rosenfeld, Clouser, etc.). The concern expressed about educational issues by these authors does not appear to have been translated into quantifiable research output. Maybe enough time has not passed since the issue has come into vogue again for necessary studies to be published. However, at the present time agricultural economic contributions to educational and human capital research is built more on ideas and questions rather than empirical work. Some change can be expected in the short-term, at least in the south, since individuals in Virginia, Florida and Kentucky are working on educational research or extension studies.

The economic literature review did not establish a strong research linkage between education or human capital and economic development. Some subsidiary linkages were evident though. For example, research exists that addresses returns to investment in education and research (e.g. Ayer and Schuh, Griliches, etc.). This mass of research typically demonstrates that for every dollar invested in education and research, that dollar plus an additional amount accrues to the public. Similar frontier research on human capital has been put forth by Schultz and Becker. Most are familiar with Becker's theory of investing in human capital, which concluded that "some persons may earn more than others simply because they invest more in themselves." This increased investment can be accomplished by individuals through schooling, job training, improved medical care, etc. Becker further asserted these investments raised earnings as the individual aged and reduced earnings at younger ages because the cost of investing is deducted from earnings at that point in time.

RESEARCH TOPICS

The literature review indicates that opportunities for research related to linkages between education/human capital and economic development should be bountiful. The question still remains, though, where do researchers begin? As a starting point to address this question it is suggested the report by the Commission on the Future of the South, "Halfway Home and a Long Way to Go," be utilized. The Southern Growth Policies Board that commissioned this study is composed of state government leaders from the south, and while their judgment on issues may be clouded by politics at any given point in time, the board and commission appointed to explore issues represents a broad consortium to identify pertinent public issues.

One of the Commission's first recommendations was that southern states provide nationally competitive education for students by 1992. The commission noted that southern states had made a large commitment to education since 1983, but they also noted that southern states started earlier than most other states. Although they do not specify exactly how this goal might be accomplished, they do delineate some potential research ideas. One possible topic would be educational finance.

How do states raise money required to provide desired educational levels when property tax wealth and incomes are extremely low in many southern states, especially in rural areas? A second possible research topic under this recommendation would deal with teaching methods or a more common jargon used today might be learning styles. Sociologists may be more comfortable with this topic than economists. However, economists can contribute to research in this area especially if it is linked to economic development. The case study presented by the school superintendent of Forrest County, Mississippi, at the Birmingham Infrastructure Conference in May 1990 is a good example. Teaching methods or learning styles were altered through use of a "gold card" that both improved grades and increased community economic activity at a total cost to the community of about $1500.

Another possible research topic under this general recommendation is a better understanding of the dropout dilemma from both an economic and social perspective. It might prove useful to conduct research to determine if economic incentives can be used to prevent dropouts or if economic incentives (e.g., businesses that hire without requiring a high school diploma) contribute to the drop-out rate. It also seems appropriate to address concerns about school and non-school based inputs and the contribution of these inputs to education (Clouser and Debertin, McNamara).

A second need identified by the Commission was the mobilization of resources to eliminate adult illiteracy. Obviously the Commission was thinking about financial and human resources. However, it seem that social scientists should be able to contribute to a better understanding of this problem through their knowledge of institution building. How do you encourage those who can't read to participate in programs? Through what type of institutions are programs offered – community colleges, universities, extension service – and what type of institutions will be most effective and economical?

Research opportunities exist in a third area identified by the Commission: preparation of a globally competitive work force. It is under this goal that the committee decided to address issues related to vocational training. Perhaps this concept needs to be broadened to life long training, or what Deaton refers to as work related education (WRE). Necessary work skills have changed dramatically in the last decade. Equally rapid change can be expected in the future. Training of only school age individuals will not provide for a skilled work-force. How do states accomplish this goal? Again, social science contributions to this issue may concentrate on institutional issues (how do we build or mobilize an institution to respond to this problem)? At the same time issues related to teaching methods and learning styles of an older target population will need to be addressed. This may represent an appropriate area to employ Becker's theory of human capital investment.

One other goal of the Commission explicitly relates to education: increase the economic development role of higher education. The link recommended by the Commission with higher education seems narrow and short-sighted. It leads one to assume the Commission looks to higher education as an industrial recruitment arm of state and local government. Though not explicitly stated as such in the Commission's report, there is evidence that at least one southern state views the role of higher education as industrial recruitment (with one major responsibility being business and job expansion). A case can be made for increased emphasis on economic development by higher education. However, by concentrating on that single issue the potential increases for other high priority research topics to be ignored.

What are some of the other possible research issues related to education and economic development? No evidence was found in the literature of linkages between current investment in human capital and education, possible economic payoffs and time. Can anyone answer the question: if an investment of dollars is made in education today how long until communities begin to reap gains from the investment? Maybe the researchable issue is if communities make an investment in education will they reap any gain at all, or do gains accrue to other communities because of

increased mobility of the newly trained individual? If gains accrue to other areas due to training mobility, does this indicate need for changes in federal programs to compensate areas that provide funding? The issue of education and economic development seems to lead to a list of endless questions. Questions that, for the most part, seem unanswered.

DEFINING INTENT

A difficult task remains for this particular information exchange group and the regional research project the group hopes eventually to bring to fruition. How can the group set priorities with potential research issues? A second related concern is the availability of funding to undertake research projects.

The information exchange group has cleared the first hurdle; there seems to be little disagreement among the group in defining infrastructure. The accepted definition includes more than "brick and mortar" infrastructure. Some clarification may be necessary among the group in defining economic development. Does economic development imply increased income and jobs, or is a broader definition that would include outcomes such as improved government efficiency acceptable? Assuming this definition hurdle is dealt with, where do educational issues rank in an overall priority list?

Data vary across the country, but somewhere in the neighborhood of 45 to 60 percent of state general fund revenue is used to finance secondary education. From a state perspective, especially in monetary terms, education may be the top priority. Prior emphasis on educational issues from a national perspective would indicate a lower priority ranking. This may have occurred because most federal dollars allocated to support education were compensatory and allocated for very narrow programs (e.g., handicapped programs). However, the recent summit with the nation's governors and the President appears to have raised the issue higher on the priority list.

In order to conduct educational research programs, monetary resources are required. Are funds available or can individuals interested in this research area compete for those funds? Social scientists may be at a disadvantage in attracting necessary funding dollars. There may be an even greater disadvantage for individuals at land grant institutions who have specialized in attracting money and establishing institutional relationships in agricultural production, marketing and management.

SUMMARY

Opportunities for human capital and economic development research exist. However, many barriers still must be overcome. As the information exchange group discusses a broad range of possible research topics, it must be determined if the group has a comparative advantage in addressing particular researchable issues. That question remains largely unanswered in educational research.

REFERENCES

Ayer, Harry W. and G. Edward Schuh. "Social Rates of Return and Other Aspects of Agricultural Research: The Case of Cotton Research in Brazil," American Journal of Agricultural Economics. Vol. 54, November 1972.

Becker, Gary. "Investment in Human Capital: A Theoretical Analysis," Journal of Political Economy. Vol. 70, October 1962.

Berne, R. & Steifel L. (1984). The Measurement of Equity in School Finance. Baltimore, MD: John Hopkins Press.

Buck, A. and D. Hobbs. "Feasibility of High Tech Companies Incubation and Rural University Settings," SBIR Report, 1984.

Carlino, Gerald and Edwin S. Mills. "Do Public Policies Affect County Growth." Business Review, Federal Reserve Bank of Philadelphia, 1985.

Clouser, Rodney L. and Lawrence W. Libby. "Rural Development in the South: In Search of Priorities," Proceedings of Agriculture and Rural Development Issues In the South. Southern Rural Development Center, 1987.

Clouser, Rodney L. and David Debertin. "Issues of Size and Costs of Education in Rural Areas," Staff Paper 253. University of Kentucky, 1988.

Deaton, Brady J. "New Institutional Arrangements for Supplying Local Public Services under New Federalism with Special Reference to Education," American Journal of Agricultural Economics, Vol. 65, No. 5, 1983.

Deaton, Brady J. and Anne S. Deaton. "Educational Reform and Regional Development," The Rural South in Crisis: Challenges for the Future. Westview Press, 1988.

Drabenstott, Mark, Mark Henry and Lynn Gibson. "The Rural Economic Policy Choice," Economic Review. Federal Reserve Bank of Kansas City, 1987.

Epping, Gary. "Advantageous Plant Location Factors in Arkansas," Arkansas Business and Economic Review, 1981.

Griliches, Zvi. "Research Costs and Social Return: Hybrid Corn and Related Innovations." Journal of Political Economy. Vol. 66, October 1958.

Hekman, John S. "What Are Businesses Looking For? Survey of Location Decisions in the South," Economic Review. Federal Reserve Bank of Atlanta, 1982.

Knutson, Ronald D., Dennis U. Fisher and Sue Jones. "Options in Developing a New National Rural Policy," Proceedings of Rural Development Workshops. Texas Agricultural Extension Service, May 1989.

McNamara, Kevin T. "A Theoretical Model for Education Production and an Empirical Test of the Relative Importance of School and Nonschool Inputs," Unpublished Ph.D. Dissertation, VPI&SU, 1986.

National Association of Towns and Townships (principal author Nancy T. Stark). "Harvesting Hometown Jobs," National Association of Towns and Townships, 1985.

Richards, Judith W. "Rural Governments in a Time of Change: Rural Economic Development." Southern Rural Development Center, 1984.

Rosenfeld, Stuart A., Edward M. Bergman and Sarah Rubin. "After the Factories: Changing Employment Patterns in the Rural South." Southern Growth Policies Board, 1985.

Schertz, Lyle P. "Improvements in the Rural South: They Won't Come Easy," The Rural South in Crisis: Challenges for the Future. Westview Press, 1988.

Schultz, T. W. "Investment in Man: An Economist's View." Social Service Review, 1959. Southern Growth Policies Board. "Halfway Home and a Long Way to Go." Southern Growth Policies Board, 1986.

Southern Growth Policies Board. "The New Infrastructure: Creating a Climate for Growth," Southern Growth Policies Board, 1985.

Swason, Linda L. and Margaret A. Butler. "Human Resource Base of Rural Economics," Rural Economic Development in the 1980s. Rural Development Research Report 69. USDA, ERS, 1988.

Wallace, L. T. "Factors Affecting Industrial Location in Southern Indiana, 1955-1958," Research Bulletin 724. Purdue University, 1961.